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L10: Entry 1 of 6

File: USPT

Nov 3, 1998

US-PAT-NO: 5830507

DOCUMENT-IDENTIFIER: US 5830507 A

TITLE: Biotherapeutic cell-coated microspheres

DATE-ISSUED: November 3, 1998

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Armstrong; David W.	Ottawa	N/A	N/A	CAX

US-CL-CURRENT: 424/489; 424/490, 424/574, 435/174, 435/177, 435/180, 435/402,  
435/403, 623/15.12

AB: A living skin replacement for the treatment of partial-thickness and full-thickness skin injuries, such as burns and other wounds, consists of a slurry of cell-coated microspheres which can be applied to the skin injury in much the same manner as a paste or salve. The skin implant can accommodate contour variations across the often extensive area of a skin injury and does not require the use of stapling, suturing or other attachment methods. The microspheres can be formed of a variety of materials that are biocompatible and resorbable in vivo.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Claims	KWIC	Draw Desc	Image
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☐ 2. Document ID: US 5766631 A

L10: Entry 2 of 6

File: USPT

Jun 16, 1998

US-PAT-NO: 5766631

DOCUMENT-IDENTIFIER: US 5766631 A

TITLE: Wound implant materials

DATE-ISSUED: June 16, 1998

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Arnold; Peter Stuart	Skipton, North Yorkshire	BD23 1LS	N/A N/A	GBX

US-CL-CURRENT: 424/486; 424/423, 424/426, 424/489

AB: Wound implant materials are described comprising a plurality of bioabsorbable microspheres bound together by a bioabsorbable matrix, such as in a freeze-dried collagen matrix. The microspheres preferably comprise over 30% of the volume of the material, and preferably have diameters of 10 .mu.m to 1500 .mu.m. The microspheres and/or the matrix preferably comprise a polylactic/polyglycolic copolymer, collagen, cross-linked collagen, hyaluronic acid, cross-linked hyaluronic acid, an alginate or a cellulose derivative. The resulting implants are stronger and more slowly resorbed than conventional collagen sponge implants. Better control over the porosity of the implant is achieved.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Claims	KWIC	Draw Desc	Image
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☐ 3. Document ID: US 5567431 A

L10: Entry 3 of 6

File: USPT

Oct 22, 1996

US-PAT-NO: 5567431

DOCUMENT-IDENTIFIER: US 5567431 A

TITLE: Polylactic acid-based implant susceptible of bioresorption containing and antibiotic

DATE-ISSUED: October 22, 1996

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Vert; Michel	Mont-Saint-Aignan	N/A	N/A	FRX
Mauduit; Jacques	Bacqueville En Caux	N/A	N/A	FRX
Bukh; Niels	Hellerup	N/A	N/A	DKX

US-CL-CURRENT: 424/426; 424/489, 424/501, 514/772.3, 514/963, 514/965

AB: Implantable poly(lactic acid)-based pharmaceutical composition which comprises at least one water soluble antibiotic in particle form with controlled dimensions, less than 100 .mu.m uniformly dispersed in an amorphous poly(lactic acid) matrix, said composition being in ground powder or thin film form. Application especially in initiating local internal antibiotic therapy by the gradual release of the antibiotic substance.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Claims	KWIC	Draw Desc	Image
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☐ 4. Document ID: US 5326355 A

L10: Entry 4 of 6

File: USPT

Jul 5, 1994

US-PAT-NO: 5326355

DOCUMENT-IDENTIFIER: US 5326355 A

TITLE: Composite material having absorbable and nonabsorbable components for use with mammalian tissue

DATE-ISSUED: July 5, 1994

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Landi; Henry P.	Westchester	NY	N/A	N/A

US-CL-CURRENT: 424/400; 442/289, 442/304, 442/397, 442/40, 606/151, 623/66.1

AB: The invention is a composite material of two or more biocompatible polymers, at least one of which is polytetrafluoroethylene (PTFE) and one of which is a bioabsorbable polymer. The nonabsorbable PTFE is used in the composite as a reinforcing binder. The reinforcing binder is a network of unsintered, interconnected micro-fibers which are formed, for example, by blending with a thermoplastic polymer vehicle, such as polymethylmethacrylate which is subsequently extracted. The bioabsorbable component is contained within the structure of the PTFE microfibrils. This composite is useful in the repair of mammalian tissue where tissue ingrowth and permanent support is required.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Claims	RWMC	Draw Desc	Image
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☐ 5. Document ID: US 5141522 A

L10: Entry 5 of 6

File: USPT

Aug 25, 1992

US-PAT-NO: 5141522

DOCUMENT-IDENTIFIER: US 5141522 A

TITLE: Composite material having absorbable and non-absorbable components for use with mammalian tissue

DATE-ISSUED: August 25, 1992

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Landi; Henry P.	Westchester	NY	N/A	N/A

US-CL-CURRENT: 523/114; 442/202, 606/154, 606/230, 623/924, 623/926

AB: The invention is a composite material of two or more biocompatible polymers, at least one of which is polytetrafluoroethylene (PTFE) and one of which is a bioabsorbable polymer. The nonabsorbable PTFE is used in the composite as a reinforcing binder. The reinforcing binder is a network of unsintered, interconnected micro-fibers which are formed, for example, by blending with a thermoplastic polymer vehicle, such as polymethylmethacrylate which is subsequently extracted. The bioabsorbable component is contained within the structure of the PTFE microfibrils. This composite is useful in the repair of mammalian tissue where tissue ingrowth and permanent support is required.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Claims	RWMC	Draw Desc	Image
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☐ 6. Document ID: US 4750910 A

L10: Entry 6 of 6

File: USPT

Jun 14, 1988

US-PAT-NO: 4750910

DOCUMENT-IDENTIFIER: US 4750910 A

TITLE: Indigo blue-colored bioabsorbable surgical fibers and production process thereof

DATE-ISSUED: June 14, 1988

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Takayanagi; Hiroshi	Ohmuta	N/A	N/A	JPX
Kobayashi; Tadashi	Ohmuta	N/A	N/A	JPX
Senoue; Eiji	Ohmuta	N/A	N/A	JPX
Imai; Masao	Ohmuta	N/A	N/A	JPX

US-CL-CURRENT: 8/563; 264/210.6, 264/211, 264/78, 528/354, 606/230, 8/489, 8/497, 8/653, 8/916

AB: Blue-colored bioabsorbable surgical fibers are obtained by adding and dispersing a bioabsorbable polymer, which is selected from polyglycolic acid, poly(1-lactic acid) and glycolic acid-1-lactic acid copolymers all of which are useful as surgical fibers, and indigo in a non-aqueous organic solvent having low solubility for the polymer and indigo, heating the resultant dispersion at a temperature below 120.degree. C. to distill off the solvent, thereby to obtain a master batch with the indigo incorporated therein at a high concentration, mixing and kneading the master batch with a fresh supply of the polymer, and then spinning the resultant polymer mixture.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Claims	KWIC	Draw Desc	Image
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L13: Entry 10 of 20

File: USPT

Dec 22, 1998

DOCUMENT-IDENTIFIER: US 5851451 A

TITLE: Production of microspheres

BSPR:

The degree of dispersion (weight-average molecular weight/number-average molecular weight) of the lactic acid/glycolic acid polymer is preferably about 1.2 to about 4.0, more preferably about 1.5 to about 3.5.

BSPR:

With respect to the composition ratio of glycolic acid and the hydroxycarboxylic acid represented by the formula (III) in glycolic acid copolymer (A), it is preferable that glycolic acid account for about 10 to about 75 mol % and hydroxycarboxylic acid for the remaining portion. More preferably, glycolic acid accounts for about 20 to about 75 mol %, and still more preferably about 40 to about 70 mol %. The weight-average molecular weight of the glycolic acid copolymer is normally about 2,000 to about 50,000, preferably about 3,000 to about 40,000, and more preferably about 8,000 to about 30,000. The degree of dispersion (weight-average molecular weight/number-average molecular weight) of the glycolic acid copolymer is preferably about 1.2 to about 4.0, more preferably about 1.5 to about 3.5.

BSPR:

Although the above-described polylactic acid (B) may be of the D- or L-configuration or a mixture thereof, it is preferable that the ratio of the D-/L-configuration (mol %) falls within the range from about 75/25 to about 20/80. The ratio of the D-/L-configuration (mol %) is more preferably about 60/40 to about 25/75, and still more preferably about 55/45 to about 25/75. The weight-average molecular weight of said polylactic acid is preferably about 1,500 to about 30,000, more preferably about 2,000 to about 20,000, and still more preferably about 3,000 to about 15,000. Also, the degree of dispersion of the polylactic acid is preferably about 1.2 to about 4.0, more preferably about 1.5 to about 3.5.

BSPR:

A biodegradable polymer having a free terminal carboxyl group is more preferably a lactic acid/glycolic acid polymer. Especially, a lactic acid/glycolic acid polymer having a composition ratio (lactic acid/glycolic acid) (mol %) of 100/0 is a polylactic acid. Microspheres produced by using a polylactic acid are able to release a physiologically active substance stably for a long term as long as about 3 months or more. Therefore, a biodegradable polymer having a free terminal carboxyl group is still more preferably a polylactic acid.

BSPR:

Such preparations include injectable preparations, implants, oral preparations (e.g., powders, granules, capsules, tablets, syrups, emulsions, suspensions), nasal preparations and suppositories (e.g., rectal suppositories, vaginal suppositories).

BSPR:

The suppository may be oily or aqueous; and solid, semi-solid or liquid. The suppository is produced normally by using oily bases, aqueous bases or aqueous gel bases. Such oily bases include glycerides of higher fatty acids [e.g., cacao fat, Witepsol-series products (Dynamite Nobel company)], moderate fatty acids [e.g., MIGLYOL-series products (Dynamite Nobel Company)], and vegetable oils (e.g., sesame oil, soybean oil, cottonseed oil). Aqueous bases include polyethylene glycols and propylene glycol. Aqueous gel bases include natural rubbers, cellulose derivatives, vinyl polymers and acrylic acid polymers.

rubbers, cellulose derivatives, vinyl polymers and acrylic acid polymers.

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L10: Entry 1 of 6

File: USPT

Nov 3, 1998

DOCUMENT-IDENTIFIER: US 5830507 A

TITLE: Biotherapeutic cell-coated microspheres

## DEPR:

The microspheres used in the present invention can be made of a variety of materials which are biocompatible and capable of being readily resorbed into the body by natural in vivo enzyme action without the formation of toxic by-products. suitable materials for the microspheres include natural and synthetically-derived bioresorbable materials such as polyhydroxybutyrate (PHB), PHB-polyhydroxyvalerate (PHB-PHV) copolymers, PHB having polyester bonds, lactide-glycolide polymers, lipids, phospholipids, polylactones, polyesters, polylactides, polyglycolides, polyanhydrides, collagen, gelatin and other resorbable materials not having an adverse effect on tissues during healing (i.e. not toxic to the cells as presented initially or through the end products of resorption). These materials can be used in pure form or as a blend of materials to enhance physiochemical properties or to control degradation rates thereof.

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L10: Entry 2 of 6

File: USPT

Jun 16, 1998

DOCUMENT-IDENTIFIER: US 5766631 A

TITLE: Wound implant materials

## BSPR:

Preferably, the microspheres and/or the matrix comprise one or more bioabsorbable polymers independently selected from the group consisting of polymers or copolymers of lactic acid and/or glycolic acid, collagen, cross-linked collagen, hyaluronic acid, cross-linked hyaluronic acid, an alginate or a cellulose derivative. Preferably, the microspheres or the matrix, or both, additionally contain pharmaceutically active compounds such as fibronectin, a cytokine, a growth factor, an antiseptic, an antibiotic, a steroid or an analgesic.

## CLPR:

8. A wound implant material according to claim 1 wherein the microspheres are formed of a first bioabsorbable biopolymer and the matrix is formed of a second bioabsorbable biopolymer, wherein the first bioabsorbable biopolymer and the second bioabsorbable biopolymer are the same or different and wherein each of the first and second bioabsorbable biopolymers are selected from the group consisting of: [comprise] a polymer or copolymer of lactic acid and/or glycolic acid, collagen, cross-linked collagen, hyaluronic acid, cross-linked hyaluronic acid, an alginate and a cellulose derivative.

## CLPV:

wherein the microspheres are formed of a first bioabsorbable biopolymer and the matrix is formed of a second bioabsorbable biopolymer, wherein the first bioabsorbable biopolymer and the second bioabsorbable biopolymer are the same or different and wherein each of the first and second bioabsorbable biopolymers are selected from the group consisting of: a polymer or copolymer of lactic acid and/or glycolic acid, collagen, cross-linked collagen, hyaluronic acid, cross-linked hyaluronic acid, an alginate and a cellulose derivative.